of a fluid drop. In some embodiments, the template may include at least a partial image of a fluid drop being backlit by a lighting source. In yet a further embodiment, the lighting source may include an LED array (e.g., the LED array **20** of FIG. **1**).

[0770] FIG. **94** is a graphical representation **9400** of an embodiment featuring a plurality of drops successively growing within a drip chamber until each falls, as seen by an image sensor (e.g., the drip chamber **4** and image sensor **11** of FIG. **1**). The image sensor communicates an output signal to a processor (e.g., the processor **15** of FIG. **1**), the processor configured to determine from the output signal when a fluid drop has fallen within the drip chamber. The curve **9408** to the left of time marker **9406** represents the image sensor's output signal prior to application of a blurring function (e.g., the blurring function of Act **9206** of FIG. **92**). Similarly, the curve **9410** to the right of time marker **9406** represents the image sensor's output signal after the application of the blurring function. According to the curve **9408** and the curve **9410** of FIG. **94**, application of the blurring function may reduce the amount of noise in the image sensor's output signal. This reduction of noise in the output signal allows the processor to more efficiently identify, from the image sensor's output signal, when a drop of fluid has fallen inside the drip chamber.

[0771] In some embodiments, the processor is configured to recognize that a drop has fallen within the drip chamber, but only if certain current events and prior events have occurred, i.e. the processor performs a hysteresis function. In one embodiment, the processor will recognize that a drop has fallen within the drip chamber when the curve crosses a lower threshold limit **9404**, but only if the curve has previously crossed an upper threshold limit **9402** since the previous crossing of the lower threshold limit **9404**. This hysteresis function may be used to avoid the processor erroneously registering that a drop has fallen due to noise in the image sensor's output signal.

[0772] Referring now to FIG. **95**, in some embodiments, it may be desirable to rely on some means other than or in addition to an audible noise or visual indicator to convey the status of a device **9500**. This may be desirable where a device **9500** is used in an environment with high levels of ambient noise and or high level of ambient light respectively. This may in some embodiments, be cheaply accomplished using a signature analyzer **9502**.

[0773] During normal device **9500** function, EM emissions will be created. These emissions are a natural artifact of how digital functions are executed by the device **9500**. Additionally, specific digital functions of the device **9500** will produce EM signatures in a predictable manner. That is, when a digital function is performed by the device **9500**, an EM emission corresponding to that function may occur. In FIG. **95**, the device **9500** includes a component **9504** which may perform a digital function. This component may, for example, be a microprocessor, clock, etc.

[0774] The EM signatures of specific functions may be empirically determined. A signature analyzer **9502** may monitor the EM emissions of the device **9500**. A received EM signature may be matched to its empirically determined meaning. In this manner, a signature analyzer **9502** may divine what digital functions are being performed by the device **9500** using the EM emissions from the device **9500**.

[0775] In a specific example, the device **9500** may be a medication delivery device. A medication delivery device may generate an occlusion alarm during operation. The generation of this occlusion alarm will cause a specific EM signature to be emitted from the medication delivery device. A signature analyzer **9502** monitoring emissions from the medication delivery device may receive and analyze this specific emission signature and thereby determine that the medication delivery device is issuing an occlusion alarm.

[0776] Various components which create EM emissions may be contained within an EM shield **9506**. This shield **9506** may suppress emissions from the device **9500** such that the device **9500** does not interfere with other devices (not shown) in the vicinity and conforms to any local requirements. The shield **9506**, however, will not totally eliminate emissions from the device **9500**. Reduced amplitude frequency emissions **9508** which satisfy regulatory compliance levels will still occur. In one embodiment which uses a signature analyzer **9502** to monitor the EM signature of a device **9500**, the signature analyzer **9502** may be suitably positioned outside of the shield **9506** and may monitor these reduced amplitude frequency emissions **9508**. In such embodiments, the signature analyzer **9502** may be an RF receiver such as a narrowband receiver. Such a receiver is capable of being tuned to very specific and reduced emission frequencies. Additionally, using a narrowband receiver may be desirable because such a receiver is relatively cheap.

[0777] In some embodiments, a medical pump device may keep track of the number of infusion sets that the medical pump device administers. The medical pump device may keep track of the infusion sets by utilizing a software radio, operably connected to the medical pump device. The software radio may include a coiled wire operably engaged with a microchip in the medical pump device, such that the microchip can transmit signals via the coiled wire.

[0778] The software radio, in some embodiments, may be used to transmit a communication signal to a handheld device that is configured to receive the signal. The communication signal may be a number of infusion sets that the medical pump device has administered.

[0779] Further, in some embodiments, the medical pump device may communicate with the handheld device via a speaker on the handheld device configured to receive an acoustic or audio signal from the medical pump device. The audio signal, in some embodiments, may include digital data that is encoded in the audio signal.

[0780] In some embodiments, the medical pump device may communicate with a handheld device by utilizing a motion sensor in the handheld device. The motion sensor may receive motion input from a motion generator included in the medical pump device. The motion generator, in some embodiments, may be a stepper motor, and, further, in some embodiments, the motion sensor may be an accelerometer. The handheld device may be configured to determine a number of infusion sets that the medical pump device has administered from the motion input received by the motion sensor.

[0781] The medical pump device may be configured to pair with a handheld device in order to establish wireless communication with the handheld device. In some embodiments, the medical pump device may establish a Blue Tooth connection with the handheld device. In yet other embodiments, the medical pump device may establish a wireless communication signal with the handheld device by utilizing near-field communication (NFC) signals.